WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
Coden USA: WJPRAP Impact Factor 8.63
Volume 15, Issue 3, 1951-1955. Review Article ISSN 2277–7105

HIMA KALPANA AND MODERN COLD MACERATION: A COMPARATIVE REVIEW OF EXTRACTION DYNAMICS

Dr. Mahesh Parasram Rakhonde[1]*, Vd. Shyamal Nirmal[2]

*[1]PG Scholar, Department – Rasashastra and Bhaishajya Kalpana.

[2]Professor Department of Rasashastra and Bhaishajya Kalpana, Ashvin Rural Ayurved College, Manchi Hill, Sangamner, Maharashtra.

Article Received on 05 Jan. 2026,
Article Revised on 25 Jan. 2026,
Article Published on 04 Feb. 2026,

https://doi.org/10.5281/zenodo.18481825

***Corresponding Author**

Dr. Mahesh Parasram Rakhonde

PG Scholar, Department-Rasashastra and Bhaishajya Kalpana.

How to cite this Article: Dr. Mahesh Parasram Rakhonde[1]*, Vd. Shyamal Nirmal[2] (2026). Hima Kalpana and Modern Cold Maceration: A Comparative Review of Extraction Dynamics. World Journal of Pharmaceutical Research, 15(3), 1951–1955.

This work is licensed under Creative Commons Attribution 4.0 International license.

ABSTRACT

Extraction of bioactive constituents from medicinal plants is a fundamental process in both traditional and modern systems of medicine. Ayurveda describes *Hima Kalpana*, a classical cold aqueous extraction method under *Panchavidha Kashaya Kalpana*, primarily indicated for heat-sensitive and aromatic drugs. Modern phytochemical science employs *cold maceration* as a non-thermal extraction technique to preserve thermolabile constituents. Despite originating from different knowledge systems, both methods share comparable extraction dynamics based on prolonged solvent–drug interaction at low temperatures. This review critically compares Hima Kalpana and modern cold maceration with respect to their conceptual basis, methodology, extraction dynamics, phytochemical implications, advantages, and limitations. Emphasis is placed on the Ayurvedic pharmacological rationale of Hima Kalpana and its relevance to contemporary extraction science. The comparative analysis highlights the potential for integrative approaches in herbal drug research and standardization.

KEYWORDS: Hima Kalpana; Cold Maceration; Panchavidha Kashaya Kalpana; Ayurvedic Pharmaceutics; Extraction Dynamics; Thermolabile Phytochemicals.

INTRODUCTION

Extraction is a pivotal step in the preparation of herbal medicines, aimed at transferring therapeutically active constituents from plant matrices into a suitable solvent. The method of extraction significantly influences the qualitative and quantitative profile of phytochemicals and, consequently, the therapeutic efficacy of the formulation.

In Ayurveda, extraction techniques are systematically described under *Panchavidha Kashaya Kalpana*, which includes *Swarasa* (expressed juice), *Kalka* (paste), *Kwatha* (decoction), *Phanta* (hot infusion), and *Hima* (cold infusion). Among these, **Hima Kalpana** represents the mildest form of extraction and is particularly advocated for drugs possessing *sheeta virya* (cooling potency), *sukshma guna* (subtle properties), and volatile aromatic principles that may be compromised by heat.

In modern pharmacognosy and phytochemistry, **cold maceration** is a conventional extraction technique wherein plant material is soaked in a suitable solvent at ambient temperature for an extended duration to facilitate diffusion of soluble constituents while avoiding thermal degradation. Although differing in theoretical foundations, both Hima Kalpana and cold maceration employ similar physical principles of mass transfer and diffusion under non-thermal conditions.

This review aims to comparatively evaluate Hima Kalpana and modern cold maceration with special emphasis on extraction dynamics, Ayurvedic pharmacological rationale, and contemporary scientific relevance.

MATERIALS AND METHODS

Ayurvedic Method: Hima Kalpana Materials

- **Drug material (Dravya):** Coarsely powdered herbal substance (*Yavakuta Churna*)
- **Solvent:** Cold potable water (*Sheeta Jala*).

Drug–Solvent Ratio

Classical texts generally prescribe a **1:6 ratio** (drug:water), though variations may exist depending on the nature of the drug and textual authority.

Procedure

The coarse powder is immersed in the prescribed quantity of cold water and kept undisturbed for **8–12 hours**, typically overnight. After soaking, the mixture is gently triturated (*mardana*)

to enhance release of soluble constituents and then filtered through a clean cloth to obtain the clear cold infusion known as *Hima*.

Dose and Administration

Hima Kalpana is intended for **fresh consumption (Sadyo Sevaniya)**. The usual adult dose described in classical literature ranges from **1–2 Pala** (approximately 48–96 mL), adjusted according to disease condition and drug potency.

Modern Method: Cold Maceration Materials

- **Plant material:** Dried and coarsely powdered herbal drug
- **Solvent:** Water or organic solvents (ethanol, hydroethanol, methanol), selected based on solubility of target phytochemicals

Procedure

The powdered plant material is soaked in the selected solvent at room temperature for **24–72 hours or longer**, with intermittent agitation to enhance solvent penetration and solute diffusion. Following maceration, the extract is separated by filtration, and the solvent may be evaporated to obtain a concentrated extract.

RESULTS AND DISCUSSION EXTRACTION DYNAMICS

Both Hima Kalpana and cold maceration rely on **passive diffusion of soluble constituents** from plant cells into the solvent over time. The absence of heat minimizes degradation of thermolabile compounds and volatile constituents. However, the extraction efficiency is inherently slower compared to heat-assisted methods.

Ayurvedic Pharmacological Perspective of Hima Kalpana

From an Ayurvedic standpoint, Hima Kalpana is selected when preservation of **virya (potency)**, **prabhava (specific action)**, and **aromatic principles** is therapeutically critical. Heating is believed to alter the *guna* and *karma* of certain drugs, particularly those indicated for *Pitta-dominant disorders*. Cold water, being *jala-mahabhuta pradhana*, selectively extracts water-soluble constituents while maintaining the cooling and soothing properties of the drug.

Classical texts position Hima as the mildest extraction among the Panchavidha Kashaya Kalpanas, indicating a sophisticated understanding of extraction intensity and drug strength gradation.

Modern Phytochemical Perspective

Cold maceration offers flexibility in solvent selection, allowing extraction of a wider spectrum of phytochemicals beyond water-soluble compounds. It is widely used in preliminary phytochemical screening, antioxidant studies, and bioactivity-guided fractionation. However, longer extraction times and higher solvent volumes are often required, and yields may remain lower than those obtained by hot extraction techniques.

Comparative Evaluation

Parameter	Hima Kalpana	Cold Maceration
Conceptual basis	Ayurvedic pharmaceutics	Modern extraction science
Solvent	Water only	Water / organic solvents
Temperature	Cold	Ambient
Extraction strength	Mild	Mild to moderate
Preservation of thermolabile compounds	High	High
Standardization	Limited	High
Clinical relevance	Direct therapeutic use	Mainly research and formulation development

Despite methodological similarities, Hima Kalpana uniquely integrates disease condition, drug potency, and doshic considerations, whereas modern cold maceration prioritizes chemical yield and analytical reproducibility.

CONCLUSION

Hima Kalpana and modern cold maceration represent parallel non-thermal extraction techniques rooted in distinct epistemological frameworks. Hima Kalpana, grounded in Ayurvedic pharmaceutics, is designed to preserve the subtle pharmacodynamic attributes of medicinal plants for direct therapeutic application. Modern cold maceration extends this concept through solvent versatility and analytical precision, enabling broader phytochemical exploration.

Understanding the shared extraction dynamics and complementary strengths of these approaches offers valuable opportunities for integrative herbal drug research, standardization of traditional formulations, and development of evidence-based phytotherapeutics. Bridging classical Ayurvedic principles with modern extraction science can enhance both clinical relevance and scientific validation of herbal medicines.

REFERENCES

1. Charaka Samhita, Sutrasthana – Kashaya Kalpana Adhyaya.
2. Sushruta Samhita, Sutrasthana – Dravya Guna Vijnaniya Adhyaya.
3. Sharngadhara Samhita, Madhyama Khanda – Kashaya Kalpana.
4. Bhaishajya Ratnavali – Kashaya Prakarana.
5. Sharma PV. *Dravyaguna Vigyana*. Chaukhambha Bharati Academy, Varanasi.
6. Handa SS, Khanuja SPS, Longo G, Rakesh DD. *Extraction Technologies for Medicinal and Aromatic Plants*. ICS-UNIDO.
7. Harborne JB. *Phytochemical Methods: A Guide to Modern Techniques of Plant Analysis*. Springer.